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STUDIES ON THE AVIAN LEUKOSIS COMPLEX

BY

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1. Observations on the Leuko-agglutination Test for the Avian Leukosis Complex.

The avian leukosis complex (Jungherr, Durant and Lee, 1941), is responsible for a very large proportion of the mortality in fowls. In this country its importance to the poultry industry can be gauged from the fact that of all birds submitted to autopsy at the Ministry of Agriculture's Veterinary Laboratories at Weybridge in 1947, 14·2 per cent. were affected with the complex. This figure has risen to 20·4 per cent. by 1949 (Coles, 1950). In the U.S.A. over 40 per cent. of autopsies were affected with this disease (U.S. Dept. of Agriculture, 1946).

The experiments of Waters (1945), Durant and MacDougle (1939), Lee and Wilkie (1941) designed to demonstrate transmission of the agent of leukosis through the egg, led Kissling (1947) to develop the Leuko-agglutination test as a means of recognising "carrier" birds, with a view to eliminating the disease, as with pullorum disease (Van Roekel, 1948).

He claimed that sera from birds affected with avian leukosis invariably agglutinated antigen prepared from stained washed lymphocytes from the spleen and lymph glands of all species tested (including the chicken) with the exception of the ox in which positive reactions were obtained with all chicken sera, normal and pathological.

Wilson (1950) mentioned that he had experimented with various modifications of the antigen but apart from mentioning the difficulty of reading the end points, published no figures on the correlation of the test with lymphomatosis.

No other published observations on the accuracy of the test have yet appeared, although Burmester (1950) stated that whilst he had obtained positive reactions to the test, he found no correlation between these and the incidence of the leukosis complex.

The present experiments were carried out in view of the importance of confirming, or otherwise, the promising results suggested by Kissling's work.

As this series consisted largely of culls, it was felt necessary not only to test a similar series, but also to test birds not showing obvious signs of ill health. This it was felt would be a more realistic trial of the possibilities of the leuko-agglutination reaction as a field test. In such a series it was to be expected that few would show macroscopic evidence of lymphomatosis in view of the report by Davis and Doyle (1947) that birds with normal livers may die of the disease three to four weeks later. Criteria were thus needed for the diagnosis of early cases of disease. Periportal accumulations occur in large percentages of most strains of chickens. These infiltrations may show all the types of histology seen in cases of lymphomatosis (Lucas, 1949). Since only a percentage of birds, showing these infiltrations, will die of the disease, the difficulty exists in deciding which are early cases of the disease. In view of this, only those birds showing very extensive infiltrations were so diagnosed.

EXPERIMENTAL DATA

1 (*a*) *Material Studies.*—Two groups of hens over five months old hatched and reared on the Animal Health Trust's Poultry Research Station were used. Group I consisted of 100 birds (Barred Rocks and Brown Leghorns) autopsied immediately after death. Sera were collected from the heart and tested, using a modification of the antigen suggested by Kissling. Group 2 consisted of a healthy flock of 94 six-month-old Barred Rock hens. Sera from these birds were tested in August 1949 and two months later and then they were killed and autopsied. The birds were weighed after killing and the weights of their viscera noted. The detailed examination for the various types of leukosis was made and supported by histological study of the liver, spleen and kidney of each bird in both groups. Material for histological examination was taken from the viscera, fixed in 5 per cent. formol-saline embedded in paraffin, stained with haematoxylin-eosin and Jenner-Giemsa. Only macroscopic examination of the nerves was made—since the neural form appears almost non-existent in this flock.

1 (*b*) *Preparation of the Antigen used for the Test.*—Kissling used as his antigen suspensions of washed canine lymphocytes obtained from the spleen and lymph glands. Formalin was added as a preservative, methylene blue to render the aggregation of the lymphocytes, on the addition of sera, more obvious. Canine spleens were unobtainable and since Kissling obtained identical results with sheep lymphocytes, they were used in these present experiments. Spleens obtained from freshly killed sheep at the local abattoir provided a readily available source of lymphocytes. Methylene blue was replaced by crystal violet, producing a final dilution of 0·03 per cent.; crystal violet was used in view of its superiority in the pullorum test, Bunyea, Hall and Dorset (1929) and since it gave results identical to those of a methylene blue antigen.

Microscopic aggregation made the haemocytometer counts suggested by Kissling, an inaccurate means of standardisation of the lymphocyte suspensions. Photoelectric methods were therefore employed. Suspensions giving an absolute co-efficient of 30 with the blue filter using a Unicam electro-photometer were employed throughout the tests. An identical antigen in which the lymphocytes were replaced with a suspension of talc at the same light absolution density was used as a control.

1 (*c*) *Technique for Testing.*—The method of performing the leuko-agglutination tests, used by Kissling was followed in detail. A plate similar to that used in the pullorum whole-blood rapid slide test was used. The antigen was shaken well before using. 0·1 ml. was measured on to the plate and mixed, by means of a clean match stick, with 0·01 ml. serum. The plate is then rocked for three minutes to aid the mixing of the serum and antigen. The reaction must be read soon

after this as spontaneous agglutination occurs as the antigen clumps on the plate. A positive reaction consisted of a definite clumping of leucocytes with subsequent clearing of fluid. The fluid remains cloudy in a negative reaction, although small clumps may form around the periphery. A very fine granular reaction was considered negative.

Results

I. Of the 100 birds in Group I, 45 showed macroscopic evidence of the various types of leukosis, and this was confirmed microscopically. Seven birds showed evidence of other types of neoplasms. Other diseases accounted for the deaths of the remaining 48 birds.

Of the 45 with leukosis, 33 were positive to the test. Out of the 55 birds not showing the disease 47 were negative to the test. Thus the total agreement between the test and autopsy findings in this series was 80 per cent. with a discrepancy of 20 per cent.

The test appeared to be more specific for gross liver damage than for the leukosis complex, since of 35 birds with extensive neoplastic liver involvement, 33 were positive, of 65 birds not showing extensive liver involvement in this series, none was positive.

This gives a total agreement of no less than 98 per cent. and a discrepancy of only 2 per cent.

II. The tests in the second series were not so encouraging. The two tests conducted at a two-month interval before the birds were slaughtered, showed inconsistent results.

Out of a total of 94 birds in the experiment, 35 birds gave a positive test on one or both of the two occasions, 24 reacted to the first test only, 18 to the second test. Only seven gave positive tests on both occasions.

Of the seven birds positive to the test on both occasions, three, or 42·3 per cent., showed evidence of leukosis; of the 28 birds positive to only one of the two tests six, or 21·5 per cent. exhibited leukosis; of the 59 birds negative to both tests, six, or 11·7 per cent., were affected with the disease. These figures show a tendency in this series for leukosis to occur in the groups in which positive reactions occur.

The above figures show some correlation between the test and the leukosis complex, even if the agreement between the tests during this period was low. The first test of the birds of group II showed 73·4 per cent. agreement between the test and the autopsy findings, while the second test showed a 75·5 per cent. agreement. If we count the birds reacting only once to the test as negative, then the percentage agreement rises to 82·9 per cent. The percentage agreement is only 65 if birds not giving a positive test at either occasion are accepted as negative. However, the picture given by these figures may well be biased by the number of birds without leukosis being so much greater than those with the disease.

Discussion

Forty-eight sera from ninety-four birds examined by Kissling showed the presence of lymphocyte agglutinins and of these 83·3 per cent. had demonstrable lesions of leukosis. Of the non-reacting birds, none showed gross lesions, two had microscopic lesions. On the basis of these results he suggested that the test might prove of value in detecting birds with the disease.

Some measure of agreement with his results was obtained in the present study. The correlation between positive reactions and leukosis was not as close as that observed by Kissling. The inconsistency of results of the two tests on the Group II birds suggests that the test is not yet suitable for use in the field.

It is possible that further modifications, more reliable than the original test in detecting early cases of the disease, will be developed once the mechanism of the reaction is known.

Such tests may prove valuable research tools, but their value in the field may be limited, especially in the light of the failure to observe a significant difference in the incidence of leukosis in the progeny of dams dying shortly after the breeding season with leukosis, and the progeny of dams not dying of this disease (Cole, 1949).

Summary

1. Correlation between the leuko-agglutination test and leukosis, as observed by Kissling, has been confirmed.

2. This correlation in birds examined was not as close as that encountered in his series, and in clinically normal birds the correlation was very slight.

3. Inconsistent results were obtained in two tests conducted at two-month intervals.

4. The implications of the test are discussed.

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CANCER RESEARCH: ANIMAL EXPERIMENTATION

On the motion for the adjournment of the House of Commons on Tuesday of last week, Mr. Peter Freeman raised the question of the experimentation on living animals in an effort to find a cure for cancer. He said that in 1904 there were 8,292 such experiments, and last year they numbered 75,343; in 1900 deaths from cancer were 26,721, and last year were 80,732. There should be no further delay in abandoning these experiments which were useless and futile; study should be made of other likely causes of the disease. He asked for a full and impartial enquiry into the question.

Dr. Charles Hill said that to assert that animal experimentation was futile was to fly in the face of the facts. At least one form of cancer had been successfully studied and was now curable as a result of such research.

Mr. de Freitas, Under-Secretary, Home Office, said that there was general agreement that the advances recently made in the knowledge of the causation and treatment of various forms of cancer would have been impossible without experimentation on animals. Most of the experiments were made on mice; in the last two years the total number of experiments on cats was 24, and on dogs 28. A close control of experiments was exercised by the Home Secretary under existing legislation.

[On November 1st Mr. Freeman presented a petition to the House against the practice of experimenting on living animals. It had (he said) been signed by over a quarter million people.]

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Weekly Wisdom

"... *Remember, Paul, people are very open minded about new things—so long as they're exactly like the old ones...*"—Chas. F. Kettering.

FUNGOUS DISEASES OF ANIMALS

[Contributed]

The fungous diseases of animals do not receive very much attention from research workers. They tend to be accepted without very much anxiety by the owners, and the clinical outlook on them has changed little in the past decades. Progress in the collection of knowledge concerning causal parasites has been hampered by the lack of specialists on the subject.

Mycology is a very specialised science and the ordinary training in medical or veterinary bacteriology provides only a limited knowledge of fungi. The specialist mycologists are almost all plant mycologists: there are, so far as we know, no whole-time posts anywhere for veterinary mycologists—there are none in any of the countries of the British Commonwealth. The conditions in medical mycology are better, but there is no chair of medical mycology in this country. An example of the position as indicated above is furnished by the Committee on Medical Mycology of the Medical Research Council on which out of 12 members four are practising plant mycologists. As knowledge on mycology in general has been collected, that on parasitic fungi of man and animals has lagged behind. There is need for research on a good many of the fungi that affect animals.

While fungi are less important than bacteria as pathogens of man and animals the converse is the case with regard to disease in plants. It is of interest to note that the first parasitic fungous disease to be recognised was the "muscardine" disease of silkworms caused by the fungus *Beauveria bassiana* described by the Italian, Bassi, in 1835. This development inaugurated a new era in the understanding of disease and helped to pave the way for the growth of bacteriology later in the century.

During the 19th century a number of mycotic infections of man and animals were described, mostly by persons with training only in medical or veterinary bacteriology. There has been insufficient co-operation between plant mycologists and those dealing with diseases of warm-blooded animals.

Since the First World War, particularly in the United States, fungi of medical importance have, however, been studied by trained mycologists with most productive results. In this country Dr. J. T. Duncan, who lately retired from the staff of the London School of Hygiene and Tropical Medicine, has for many years specialised in medical mycology and has been of great help to veterinarians with whom he has been in contact.

One result of the neglect of medical and veterinary mycology is the unsatisfactory state of the nomenclature regarding many of the parasites. Unspecialised workers have investigated fungous diseases of animals and man and often light-heartedly coined unsuitable names for the parasites. The nomenclature has sometimes been described as chaotic. In an attempt to tidy up the nomenclature the Medical Research Council published (1950—M.R.C. Memorandum No. 23) a report drawn up by its Medical Mycology Committee. It is hoped that medical and veterinary publications will accept the rulings of this committee regarding nomenclature and that its use eventually will simplify the position in this respect.

The British Mycological Society held a meeting in July at Reading University at which a whole day was devoted to mycological problems of common interest to medical and veterinary workers.

Mr. J. D. Blaxland, of the Veterinary Laboratory, Ministry of Agriculture, Weybridge, gave an account of a new condition in this country that has given considerable trouble, *Candida albicans* infection in turkey poults.

The diseases caused by organisms of the genus *Candida* are usually spoken of in medical and veterinary literature as moniliasis because the causal organisms had for a long time been named as belonging to the genus *Monilia*. This is an example of the difficulties with regard to nomenclature already referred to and it is considered to be an unavoidable compromise.

The disease in turkeys had been recognised by Gierka (1932) and was observed in this country in 1949 when five outbreaks, involving the death of more than 8,000 of a total of 12,000 turkey poults, were investigated by Blaxland and Fincham. The affected poults did not usually show any diagnostic symptoms. Young birds dying from acute disease were of normal bodyweight but older birds infected for a longer period showed uneven growth and general unthriftiness. On *post-mortem* examination, however, crop lesions were usually found, either as a flocculent greyish white exudate adherent to the underlying mucous membrane or, in chronic cases, as a thickening of the crop wall, the inner surface of which was covered by a mass of yellowish-white necrotic material giving a "turkish towelling" appearance.

From these crop lesions isolations were made of the yeast-like fungus *C. albicans*—the subject of a paper by Miss P. M. Stockdale, University College, Exeter, in which she described the methods commonly employed for the determination of the morphological and physiological characters used for the differentiation of this and other species of *Candida*.

The circumstantial evidence all pointed to the responsibility of *C. albicans* for the death of the birds and for the infectious nature of the disease, but the factors underlying these epidemic outbreaks are not clearly understood. Infection experiments, still in progress, on turkey poults and chicks, with strains of the fungus strongly pathogenic for rabbits, have not resulted in epidemics and in some instances after a period of sub-normal development the young birds appear to have recovered although *C. albicans* has been isolated from representative individuals killed for cultural and histological examination.

It was noticed in the naturally occurring outbreaks that some birds showed symptoms usually associated with nutritional deficiencies and also, in certain cases, nervous symptoms recalling those of Newcastle disease. In only one of four of the outbreaks for which data was available was there evidence of unsuitable diet, but in two the hygienic conditions were poor.

Additional evidence for the complex aetiology of moniliasis in poultry has been obtained from a survey of the incidence of crop lesions and of *C. albicans* in turkeys and turkey poults, fowls and chicks, and in ducklings, geese and goslings which have come up for routine *post-mortem* examination at the Veterinary Laboratory, Weybridge, since the beginning of this year. Most of these birds had died from other causes but from 9 per cent. of 127 turkey poults and 43 per cent. of 73 adult chickens *C. albicans* has been isolated, some birds having exhibited crop lesions and others not. It would thus appear that *C. albicans* is not uncommonly associated with normal birds and that in poultry as in man the origin of the moniliasis is endogenous. Similar difficulties are likely to be experienced in evaluating the significance of yeasts found associated with pathological conditions.

Dr. R. E. Rewell, until recently pathologist to the Zoological Society of London, gave an account of aspergillosis of birds and other animals, a disease which, in contrast to moniliasis, has an exogenous origin. *Aspergillus fumigatus* was the commonest causal agent. The disease takes an annual toll of birds in the London Zoo and also of poultry throughout the country. It is characteristically a disease of the respiratory

system. The air sacs are the region most frequently affected and it is only occasionally that the abdominal viscera are also involved. Usually, lesions in the abdominal viscera are tuberculous and in a survey carried out by Ainsworth and Rewell (1949) at the London Zoo during 1946–48 no evidence was obtained to support earlier claims that infection by *A. fumigatus* and the tubercle bacillus may occur in the same organ. The time of incidence of aspergillosis shows an interesting contrast to tuberculosis. The former is primarily a disease of the early days of captivity while the latter attacks birds long captive. During the recent survey, of 76 birds dying from aspergillosis, 62 had been less than six months in the Gardens while 36 of 42 birds dying from tuberculosis had been more than six months in captivity. In Dr. Rewell's opinion there is no authentic record of tuberculosis in a bird in the wild, contact with domestic poultry being the most plausible explanation of the few recorded cases. On the other hand, evidence that wild birds suffer from aspergillosis though not conclusive, is very strong. Attention was also drawn, by Rewell and Ainsworth (1947), to aspergillosis in a buffalo and an epidemic of this disease occurred in a colony of wallabies at the Whipsnade Zoo. An interesting case of a condition resembling thrush in a shoebill from which *C. albicans* was isolated was also recorded.

A number of fungi pathogenic for animals and man are yeast-like in the parasitic phase and mycelial under the usual conditions of culture. This phenomenon may be an adaptation for parasitism, but it is perhaps more probable that it is a potential "dimorphism" which enables such species to invade new habitats.

The causal organism of equine epizootic lymphangitis, hitherto called *Cryptococcus farciminosus*, has changed its name. Mycologists have decided that it belongs to the genus *Histoplasma*, so its new name is *Histoplasma farciminosum*. This organism is a dimorphic species. It was discussed by Dr. J. J. Bullen who, after gaining experience of the disease while on Service with the Royal Army Veterinary Corps in Assam and Burma during the Second World War, has since studied its physiology and serology at the Institute of Animal Pathology, Cambridge, where he succeeded in elucidating the conditions for effecting the mycelial-yeast transformation by adjusting the environment (Bullen, 1949). The epidemiology of the disease is obscure, but it is highly probable that the parasitic activity of *H. farciminosum* is confined to equines and thus it differs from the fungus *H. capsulatum*, the cause of histoplasmosis in man, dogs and certain rodents.

H. capsulatum was one of the examples mentioned by Dr. J. T. Duncan in a comprehensive review of the rélation of mycoses of animals to disease in man. Histoplasmosis is one of the group of mycotic diseases including coccidioidomycosis (*Coccidioides immitis*) and sporotrichosis (*Sporotrichum schencki*) in which man and animals are subject to the same external hazard of infection by fungi able to live saprophytically. In such diseases the animal hosts are often of considerable importance in epidemiological studies on the disease in man by indicating the geographical areas in which the parasite is endemic and also as in coccidioidomycosis, by helping to propagate the parasite.

In contrast to this is another group of mycoses in which man contracts infection directly from a diseased animal. Sometimes the converse occurs, as when the school cat becomes infected from a child with ringworm, which is a typical disease of this type. Cats, dogs and cattle are often infected with dermatophytes and in most country districts almost all human ringworm is caused by fungi derived from animals, in contrast to the predominance of specifically human ringworm fungi in large towns. No co-ordinated efforts are made to control dermatophytes on domestic and farm animals and so a large reservoir is available from which farm workers can contract infection, sometimes sufficiently severe to involve a period in hospital, and through the agency of which children's education can be disturbed.

Actinomycetes, perhaps most properly classified as bacteria but often referred to mycologists for identification, also came under discussion. Dr. Rewell noted a disease in wallabies attributed to an aerobic member of this group while attention was drawn to the anaerobic forms which cause actinomycosis in man and cattle by Mrs. D. Oxford, who has recently begun a study on the status of the human and bovine forms. She would be grateful for material of these diseases which should be sent to the Department of Bacteriology, Foresterhill, Aberdeen.

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A NOTE ON THE HISTORY OF BRITISH HORSES IN THE LIGHT OF RECENT INVESTIGATIONS

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It may be of interest to the profession to have a brief summary of the first results of work at present being carried on in the Anatomy Department of the Royal (Dick) Veterinary College; at the same time it is hoped that any member of the profession having any note or observation on this subject may contribute towards the completion of this most interesting picture.

The late Principal O. Charnock Bradley collaborated with Professor J. Cossar Ewart in earlier researches into the origin of the horse, and their pioneer work left a sound foundation on which we can build in the light of recent fossil discoveries.

For many years fossil animal remains have been considered to be within the province of the zoologist and archaeologist, and a commentary on this last fact is that some of the material submitted to us for this investigation has turned out to be ox. It seems appropriate that a study of the origin of the horse should be done in a veterinary college, and particularly in the department where Dr. Bradley worked.

Briefly, the horse is indigenous to Britain; it existed in considerable numbers and was probably a dominant animal before the influence of man became evident some 100,000 years ago. A similar native horse is in existence in Britain to-day, living under the same herd laws and quite independent of any form of human assistance, other than a periodical round-up and thinning out. Natural selection has maintained this animal over a period of hundreds of thousands of years, and if left alone it fits perfectly with the ecology of the rougher, wilder parts of the country, quite as well as the red deer with which it has a comparable sociology.

This native horse may be taken as the basic horse stock of

Britain and it is fundamental in the research to trace its progress and survival as indicating the type of horse most suited to the country.

With the advent of man, human interference with the native stock became evident: first, by hunting it in competition with the large contemporary carnivores, the cave lions, hyaenas and wolves.

The picture is complicated in this early period by the presence of other equidae, such as the zebra. Throughout these various epochs, marked by their rigorous climatic changes, the horse survived successfully. Then there is evidence of domestication, but with this native animal, housing and protection were and are unnecessary.

In the Bronze and early Iron Age about 250 B.C. the Celts had their own horses which differed in many respects from the natives, but may well have been similar animals, certainly kept in domestication, and probably brought by them to Britain in their westward migrations. It is most likely that the animals they introduced were stallions mainly, and these were crossed with native mares. A study of the skulls of these crosses gives an interesting comparison with those of their parents and the repetition of this crossing experiment to-day produces mongrel skulls with the same range of modifications of the facial bones, and with dental deformities.

In the late Iron Age the most significant event is the more frequent appearance of an Arab type of horse, apparently introduced by the Celts, and possibly obtained by them in their Mediterranean trading. The source of these horses could be various, if it is remembered that the Phoenicians are said to have been in the Iberian peninsula in the 11th century B.C., with the Greeks, Phoeceans, Rhodians, and Carthaginians following. The slender limb bones and the flattened bones of the body of the mandible and incisives are characteristic. These Arab types of horses are invariably found buried near human habitations and evidently in domestication.

Thereafter, much of the history of the horse is recorded and may be investigated, but always the greatest stress has been laid upon the significance of the imported stallions. It is to be remembered that these imported animals are products of another climate and ecology and their influence upon the mass of the native stock is man produced, and often in antagonism to the laws of natural selection. In domestication, faults of conformation and constitution may be concealed, but probably are cumulative. The ideal in selective breeding is to know that the original parents are sound in constitution, will breed true and come from a reservoir of foundation stock maintained in purity.

With these precepts in view we have sought for a horse which is native to the country and which could have had a chance of escaping the mongrelisation provoked by man.

At a glance the Exmoor pony seemed to meet many of these requirements. It has the colouring of the wild horse, and as far as recorded history goes it had been herded as a wild animal under Royal protection in the Forest of Exmoor. History does not deal fully with interesting points such as the effect on these herds of Henry VIII's edict that only his imported stallions were to be used for breeding in England, but as far as can be deduced from an examination of a modern Exmoor pony, either Henry's edict did not run so far west, or the wild stallions of the Exmoor herds contrived that these imported stallions returned to the east.

The fossil remains of horses in the West Country, typified by those found in the Mendip caves, show that the same or a similar horse existed there at a date which has been placed at approximately 60,000 B.C. Considering these points and accepting the significance of Professor Grahame's observation that the skeletal structure of the Exmoor pony resembles closely that of Prjevalsky's wild horse, with which it could have had a parallel evolution, the Exmoor was selected, after the elimination of several other breeds, for further study.

This study is now proceeding and has yielded interesting results. Within the Exmoor breed there are animals that show varying degrees of mongrelising, a concession no doubt to the attention paid to "fining down." There are, however, also a few of the old stock surviving which have every quality of skeletal conformation required to fit them into the lineage of the indigenous British horse. This last fact is fortunate, because it presents an opportunity to start a breeding experiment in the light of many centuries of experience. We have the native British foundation stock, and a first step should be to select and preserve it.

We know of another original parent, the Arab, and we also know that by judicious selection from just such original parents the English thoroughbred was derived—by several different breeders—in a space of little more than 100 years. Expecting no miracle of parthenogenesis, it is logical that we should attempt to save the mare as well as flatter the stallion that gave us our original superlative horses. A policy of constantly breeding one parent back upon the progeny could only result in fixing the points, good and bad, of that parent, and would ultimately produce in his descendants simply a facsimile of himself. A better result would be obtained by knowing which of the original parents possessed the quality lacking in the progeny and using that parent for its reintroduction. We emphasise this because one of the parents is at the point of extermination due to a changing economy and thus a chance to repeat the experiment which produced the New Oswestry line may be lost for ever.

In conclusion, we would like to note that the material available for this work has been freely lent to us, and we have been especially fortunate in having some of the Mantell Collection of chalk conglomerate fossils and the Arab and Prjevalsky's bones from the British Museum of Natural History. The Royal Scottish Museum has lent us the bones of a Viking horse. Mr. Balch, of the Wells Museum, provided us with a wealth of material and data from the Mendip Caves, and from the Reading Museum we have received some of the recently excavated horse bones from Blewburton. The Hunterian Museum in Glasgow has also provided us with material whose value we recognise for our further work, and at the *gisement* of M. Marcel Castanet, of Castel Merle, Dordogne, we were given some particularly significant fossils.

A point of national importance is that there should be a reservoir of sound foundation stock from which in emergency robust and economic draught animals can be produced.

During this temporary phase of the eclipse of the horse, provoked and sanctioned by shortage of rural manpower, by policy and by misrepresented values, it is interesting and we hope prophetic for the interests of the British horse, that this is the anniversary of the occasion when Gideon Mantell's collection passed into the hands of the British Museum 100 years ago and now is likely to contribute much to our investigation into the origins of British horses.

The programme of a sessional meeting of the Royal Sanitary Institute to be held at Canterbury on November 18th, includes (at 2 p.m. in the Board room, Kent and Canterbury Hospital) a discussion on "'Q' Fever," to be opened by B. P. Marmion, M.D., B.S., Public Health Laboratory Service; G. Slavin, DR. MED. VET., M.R.C.V.S., Senior Research Officer, Ministry of Agriculture and Fisheries Veterinary Laboratory; and M. S. Harvey, M.B., CH.B., D.P.H., Medical Officer of Health, Canterbury. Also a paper, with discussion, on "Psittacosis: Recent Developments," by A. D. Macrae, M.B., CH.B,. Virus Reference Laboratory, Central Public Health Laboratory.

Verminous Parasites and Veterinary Practice

Discussion on Dr. E. L. Taylor's Paper to the Scottish Metropolitan Division, N.V.M.A.

(*Continued from page* 616)

Discussion

Mr. H. M. Wilson congratulated Dr. Taylor on his interesting but provocative paper. Did Dr. Taylor advise small frequent doses of phenothiazine in horses? What was his opinion on anthiomaline? He found sloughs occurred very often after injection, which was a nuisance, but farmers had great faith in it and asked for the treatment. Did the substance possibly act by having a general tonic effect? He advised farmers to give extra concentrates where hoose was present, but the farmer complainel that the extra cost of these rations made this line of treatment prohibitive.

Dr. Taylor said that in horses one gramme daily doses of phenothiazine had no anthelmintic effect in the ordinary sense of the word, but worm eggs disappeared almost completely from the faeces after 48 hours. With regard to anthiomaline, he was not aware of any reports of controlled observations on its effectiveness in parasitic bronchitis. He understood that the pharmacologist no longer held with the idea of benefit derived from tonics.

Mr. J. T. Stamp noted that Dr. Taylor wished the profession to keep control of phenothiazine, but he would like to let farmers have it more freely. It should be given in larger doses than often were used. He desired to see greater control of quack medicines. Even if the profession were consulted to a greater extent, we could offer nothing more than either phenothiazine or copper sulphate. Dr. Taylor had suggested daily dosage of half a gramme of phenothiazine in lambs. For what period was this suggested? He found it was not feasible to give over a long period. Many Scottish lambs received nothing but grass and there was no question therefore of giving it in concentrates. He frequently found small egg counts but thought often that the lesions at *post-mortem* examination indicated helminthiasis.

Dr. Taylor agreed with Mr. Stamp that farmers ought to use more and not less phenothiazine. What he deplored, however, was that at present it was too much in the hands of the vendors so that the practising veterinary surgeon was completely sidetracked and usually was not called in to diagnose or to advise on the best way to use anthelmintics. He also agreed that it would be helpful if the veterinary surgeon drew up a dosage programme for the farmer. Better than this, however—indeed he thought it most desirable—was it for the veterinary surgeon to get on the farm; in his view this would have followed naturally had the profession managed to keep control of anthelmintic drugs. He agreed about the variation in worm egg counts. It was complicated by the question of some sheep having greater resistance and by many other factors. There was no doubt that of the various aids to diagnosis the worm count was the best.

Mr. S. Jennings thought he had some evidence that mechanical irritation in the alimentary tract could produce convulsions in puppies and he believed the same was thought to be the case in babies. Would it not be possible that in a heavy infestation of parasites in puppies the mechanical irritation alone might be responsible for fits?

Dr. Taylor agreed that this might be the case.

Dr. Watt wondered if continued dosing with phenothiazine might result in a preponderance of resistant species.

Dr. Taylor replied that as yet there was no satisfactory evidence of this having occurred, although, theoretically, a system of giving repeated small doses would appear to be encouraging the selection of phenothiazine-resistant strains of worms.

Mr. Stamp thought there was something in what Dr. Watt had said. He knew of cases where 60 gramme doses of phenothiazine had produced no beneficial effect in lambs but when copper sulphate had been used they never looked back. It had been thought that Nematodirus was harmless but he believed this worm to be more harmful than was generally thought.

Dr. Taylor suggested tentatively that perhaps the copper was supplying a deficiency? He was driven to suggesting that rather unlikely reason for Mr. Stamp's observation because present knowledge on phenothiazine and on copper sulphate would make it seem very unlikely that it could be explained on helminthological grounds.

CLINICAL COMMUNICATION

THE TREATMENT OF RETAINED PLACENTA AND SEPTIC METRITIS OF THE BOVINE*

J. B. WILSON, B.SC., M.R.C.V.S.,

NANTWICH

I have chosen this subject firstly because it is one of the commonest conditions we are called upon to treat in cattle practice and secondly because the best way of treating it is a controversial topic among veterinarians.

In my opinion no treatment should be given until the placenta has been retained for 48 hours. Any treatment applied earlier than this may appear unduly successful as a proportion of these cases would cleanse on their own if left a little longer.

In the vast majority of cases I am strongly opposed to manual removal of the placenta.

In a few exceptional cases the placenta is found, upon examination, to be lying entirely separated from cotyledons —or in some cases these may have sloughed off with the placenta—and be lying free within the uterus. In these cases manual extraction of the mass is indicated—sometimes it is found that the cervix has partially closed and incarcerated the mass and in these it is necessary to extract the placenta, little by little, through the cervix.

Manual removal should mean the complete withdrawal of the chorionic placental tufts from the crypts of the cotyledons. I maintain that this is impossible except in the everted uterus or at about seven days or more after calving when the membranes will be practically separated.

Where the placenta is removed as a routine practice two or three days after calving I am quite sure in my own mind that it must be torn away for the most part in pieces, leaving considerable portions covering the cotyledons and embedded in the crypts on their surfaces.

The highly vascular endometrium—particularly on the cotyledons—is bound to be subjected to considerable trauma, rendering it far more susceptible to bacterial invasion.

Acute metritis is very liable to follow this unnecessary interference and severe systemic upset and possibly death of the animal may follow—in my opinion largely due to this rash manipulation.

Again I contend that it is very seldom possible to reach the cotyledons situated at the ovarian pole of the gravid horn and there can be no possible advantage in removing most of the placenta and leaving a portion behind to putrify in the most dependent part of the uterus.

For these reasons, therefore, I consider that far more harm than good is done by manual removal of the placenta as a routine practice.

I can see no advantage in the administration of stilboestrol or pituitrin—either alone or together—though they may be useful at a later stage as an aid in the removal of septic fluid. Their use may have a good psychological effect upon the owner but the use of these products for this particular purpose is very open to criticism on ethical grounds.

Contraction of the uterine walls can have no effect on the separation of the placenta from the cotyledons. The hyperaemia of the endometrium which may be induced by the use of these hormonal products must tend to increase toxin absorption from the uterus. Again it is questionable if it is advisable to stimulate an inflamed organ.

* Presented to the Lancashire Division, N.V.M.A., at Manchester, May 3rd, 1950.

I consider that where the animal maintains a normal appetite and her temperature is not unduly elevated no treatment is indicated. Farmers as a class are not usually impressed by this masterly inactivity, however.

The treatment I recommend is that on the third day *post partum* the animal should be examined and 200,000 to 400,000 units of penicillin be introduced into the depths of the uterus. This may be repeated daily if the animal is sufficiently ill to warrant it.

Otherwise, in the ordinary case the owner is instructed to inform one if the placenta has not fallen away by the seventh or eighth day. By this time in many cases the placenta may be lifted out of the uterus—if this is not possible it should be allowed to remain and penicillin be again introduced. When the placenta has been removed and provided the cervix is sufficiently open to allow the hand to be introduced, the uterus should be douched with a small volume of warm saline and the septic fluid siphoned off. After this douching penicillin should be introduced.

The use of penicillin in the uterus of the bovine does not seem to have received the mention that I believe it deserves. I have found it infinitely superior to any other agents previously used in bovine metritis and in many cases of acute metritis in which the prognosis seemed very grave I have found it to give an almost immediate and spectacular response.

It may be introduced as an aqueous solution by carrying a loaded syringe into the womb or by expressing tubes containing penicillin in an oil-wax base within the womb or in the form of penicillin bougies. Where the cervix is insufficiently open to allow the use of these methods it may be introduced as an aqueous solution by means of a catheter or pipette.

For obvious reasons the highly diffusible properties of penicillin render it especially valuable for use in the womb.

In bovine mastitis associated with the presence of staphylococcal and *Corynebacterium pyogenes* infections, penicillin has proved to be very disappointing. Yet *in vitro* both these organisms are highly susceptible to its action.

In the bovine uterus the action of penicillin appears to resemble its action *in vitro* and in acute septic metritis associated with mixed infection in which *Corynebacterium pyogenes* is always prominent I have found it very useful indeed.

APPOINTMENTS IN THE NATIONAL AGRICULTURAL ADVISORY SERVICE

The following appointments are announced:—

Mr. H. L. Shrimpton, M.C., Deputy Chief Livestock Husbandry Officer, has been appointed Chief Livestock Husbandry Officer in the National Agricultural Advisory Service in succession to Mr. H. Twinch, O.B.E., who retired from the Public Service on September 30th, 1950.

Mr. H. Trefor Jones, M.SC., F.R.I.C., Provincial Soils Chemist in the Yorkshire and Lancashire Province of the National Agricultural Advisory Service, has been appointed Deputy Provincial Director for the Yorkshire and Lancashire Province in succession to Mr. W. Weir, M.C., M.A., B.SC., who has retired from the Public Service. Mr. Trefor Jones' appointment took effect from October 2nd, 1950.

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SECRETARY OF THE BRITISH MEDICAL ASSOCIATION

Dr. Angus Macrae, an industrial psychologist, has been appointed Secretary of the British Medical Association in succession to Dr. Charles Hill, M.P. for Luton

Dr. Macrae has been on the staff of the B.M.A. as an Assistant Secretary since 1935 and Deputy Secretary since 1948. He has acted for Dr. Hill since the General Election. Among committees over which he presided was the B.M.A. Committee on nutrition. He qualified in medicine at Edinburgh University in 1924.

ABSTRACTS

[Tuberculosis of the Brain in Cattle. (Trans. title.) Teuchner, K. (1950.) *Schweiz. Arch. Tierheilk.* **92.** 23–41.]

From 25 cases of brain tuberculosis, each one verified by pathological and histological examination, the author draws the following conclusions. There are no pathognomonic signs since the symptoms commonly observed (opisthotonus, incoordinated or continuous abnormal movements, somnolence, blindness) are not specific but indicate only a general brain disorder. Diagnosis may be clarified by the age (mostly young animals), positive tuberculin test, characteristic cerebrospinal fluid, and the eventual or simultaneous occurrence of pulmonary tuberculosis. Conditions arising in differential diagnosis are tumours, *C. pyogenes* abscess, non-specific meningo-encephalitis (following puerperal or navel infection or enteritis coccidiosa), actinomycosis and otitis media. Pathogenesis of the cases is also described.

R. M.

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[Methods of Obtaining, and Normal Values for, the Cerebrospinal Fluid of Cattle. (Trans. title.) Stöckli, Anton. (1950.) *Schweiz. Arch. Tierheilk.* **92.** 228–249.]

In the diagnosis of nervous diseases of cattle the examination of cerebrospinal fluid (c.s.f.) is of great importance, and lumbal puncture is a procedure which can be easily performed by the practitioner. The technique and apparatus required for suboccipital and lumbal puncture in the standing animal are described. Complications or accidents are stated to be negligible and 20 c.c. of c.s.f. may be withdrawn without harmful effect on the animal. From the results of 220 punctures in cattle the author establishes normal values for the general appearance, cell count, sugar and albumin content, and colloid reaction of c.s.f. Using these normal values it will now be possible to investigate the pathology of cerebrospinal fluid.

R. M.

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[Effect of Aureomycin on *Leptospira canicola* and *Leptospira icterohaemorrhagiae in Vitro* and Experimental Carrier Studies. Brunner, K. T., & Meyer, K. F. (1950.) *Amer. J. vet. Res.* **11.** 89–90.]

The authors have demonstrated the sensitivity of *Leptospira canicola* and *Leptospira icterohaemorrhagiae* to aureomycin. One-tenth of a microgram per c.c. of medium inhibited the growth of both organisms, while 1 microgram per c.c. was bactericidal after 50 to 64 hours. The therapeutic effect of aureomycin was tried out on experimental leptospiral carriers in young hamsters and dogs. Fifteen of the hamsters were treated for three days and ten were treated for five days with aureomycin (1 mg. every eight hours intraperitoneally). All these animals proved to have sterile kidneys on *post-mortem* examination two days after the last treatment. Four young dogs excreting leptospira were treated. Two were treated with 5 mg. and two with 40 mg. per kilogram body weight administered orally. The higher dose succeeded in sterilising the urine.

D. L. H.

An Order has been made by the Minister of Agriculture and Fisheries, the Secretary of State for Scotland, and the Secretary of State for the Home Department, revoking the Imported Cattle (Restriction on Use) Orders of 1941 and 1942. Henceforward it will be unnecessary for imports into the United Kingdom of bulls, cows and heifers obviously in calf, or cows in milk, to be authorised by licences issued by the Agricultural Departments.

QUESTIONS AND ANSWERS

The submission of questions for inclusion in this column will be welcomed; they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address. It is regretted that consideration cannot be given to questions for which solely a private reply is required.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Horse's Death After Access to Sack of Grain

Q. 364.—*A horse at grass gains access to a sack of whole unmilled wheat and barley and subsequently dies. Can you tell me :—*

(*a*) *Name of toxic factor causing death?*

(*b*) *Physiological and biochemical processes involved?*

(*c*) *Approximate amounts that could cause death (in this case 7 to 10 lb. of grain found in stomach at* post-mortem *examination.*

(*d*) *Approximate minimum and maximum times after consumption that one could expect symptoms of death?*

A.—No very definite answer can be given to the question. In the first place, was the consumption of the grain followed by death within a matter of hours or a few days? Was the grain new or had it been stored for some time? In the event of its having been stored, what was its condition? Without an answer to these questions, the query can be answered only in very general terms, as follows :—

(*a*) According to Akerblom (1934) toxic symptoms may be due to the production of *histamine* in the alimentary canal. More recent Australian work (1949) suggests that there is a very high production and absorption of *lactic acid*, leading to depletion of the alkali reserves of the blood, followed by death. Full details of the latter work are not yet to hand, but they seem fairly sound.

(*b*) The Australian work suggests that the toxic dose of wheat for horses is about 1 lb. per 100 lb. body weight.

(*c*) Data are not yet available as to the times involved—they depend upon the amount consumed.

References

Akerblom. Quoted by Linton, "Animal Nutrition and Veterinary Dietetics."

Australian Commonwealth Scientific and Industrial Research Organisation. First Annual Report, 1949.

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Prevention of Growth of Horns in Calves

Q. 365.—*Is there any infallible method of preventing growth of horns in calves?*

A.—Unfortunately there is no infallible method. The most consistently successful is probably the hot iron, electric or otherwise, but even this requires experience to gauge the length of time and amount of pressure required to be certain of a clean result. Caustic potash, if applied with complete disregard for the feelings of the patient, is good; but successive batches may show quite different results, as may also batches treated with one or other of the caustic fluids, in spite of apparently equal care in application.

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Unusual Sequel to Expression of Corpus Luteum

Q. 366.—*I recently expressed a corpus luteum from the right ovary of a pedigree Jersey maiden heifer. In ten days she was a roaring nymphomaniac, and a week later came into full milk. Examination showed a large cyst in the ovary which was easily ruptured. Oestrus returned to normal, but milk secretion is diminishing only slowly.*

The effect was precisely that of a stilboestrol implant. What exactly is the physiology of the condition induced?

A.—In the respondent's opinion no precise answer can be given to this question. While it is not uncommon for ovarian cysts to lead to an apparent excess production of oestrogen resulting in nymphomania and even udder development and milk secretion, it is certainly very unusual for such sequelae to follow expression of the corpus luteum. Perhaps if we knew precisely why ovarian cysts develop in cases where no corpus luteum has been expressed we might be in a better position to speculate on the physiology of the above case. It may not be inappropriate here to emphasise that in contradistinction to the considerable data, both qualitative and quantitative, concerning hormone levels and changes during the sex cycle and pregnancy in the woman, practically nothing is known about the hormonal milieu of the cow, although a very great deal has been assumed or inferred, often with very little justification. In view of this complete lack of precise facts on such matters as hormone levels and steroid metabolism in the normal cow, any views on the above unusual case would be pure speculation.

VETERINARY SURGEONS ACT, 1948

Supplementary Veterinary Register

The Council of the Royal College of Veterinary Surgeons has directed the Registrar under the above Act to register in the Supplementary Veterinary Register the names of the persons set out below.

This is the seventh list of registrations and the absence of the name of any person who has made application in prescribed form before the prescribed date does not imply that such applicant has been refused registration.

The seventh list consists of further persons in whose cases the Council are satisfied that the requirements of the Act have been met.

The date of registration is Monday, October 16th, 1950.

Further lists of registrations in the Supplementary Veterinary Register will be published.

Seventh List of Registrations

Names and Places of Practice

Bills, Arthur Roland, 8a, St. James' Parade, Muswell Hill, N.10.

Burns, Thomas Joseph, 29, Waverley Road, St. Albans, Herts.

Connorton, Charles George, "Hillcrest," 510, Chessington Road, West Ewell, Surrey.

Dredge, Herbert William, 192, Colney Hatch Lane, Friern Barnet, N.10.

Groves, Mrs. Nettie Constance, Grovecote, Preston Road, Yeovil.

Hogg, William Sheraton, 17, Ryhope Village, Nr. Sunderland.

James, John Clarke, Whitehall, Wick, Dursley, Glos.

Lloyd, Ronald, 5, Velsheda Road, Shirley, Birmingham.

Milton, Leslie Jacob, 6, Greenfield Crescent, Patcham, Brighton, 6.

Nightingale, Ernest, 176, Harwood Street, Darwen, Lancs.

Palfree, Miss Barbara Mary, Estcourt, Mickleover, Derbyshire.

Powell, Thomas Walter James, 13, Elphinstone Road, Southsea, Hants.

Read, Hubert Sturgess McEwen, 377, Wickham Road, Shirley, Croydon.

Rich, Arthur Stewart, 342, South Lambeth Road, London, S.W.8.

Romney, Mrs. Lilian Flora, 427, Eastern Avenue, Ilford, Essex.

Seggar, Leslie Claude, 123, Argyle Road, Sheffield, 8.
Snelling, James William, 56, King James Avenue, Cuffley, Middx.
Waddell, Bernard Charles Frank, "The Retreat," Buckingham Park, Shoreham-by-Sea, Sussex.
Wheatley, Mrs. Violet Sibyl, 29, Waverley Road, St. Albans, Herts.
Wilkinson, Mrs. Emma, 163, Chorlton Road, Manchester, 16.

QUESTIONS IN PARLIAMENT

Condemned Meat

Sir W. Smithers (October 26th) asked the Minister of Food, in view of the fact that in 1948 £890,000 was paid for animals which were condemned after slaughter as unfit for food, and in view of the Report by the Comptroller and Auditor-General that still further losses have been incurred through the wrong classification of animals, to state the amount of these further losses and what has been done to rectify these matters.

Mr. Webb: Difficulties arise mainly on the classification of cows and heifers. The Livestock (Sales) Order was amended in July, 1949, to provide that in cases of doubt the class of female cattle can be determined after slaughter. I am satisfied that the new arrangements will substantially reduce the risk of losses from this cause.

Sir W. Smithers asked the Minister of Food how many sheep carcases were included in the shipload of mutton which was due at Smithfield in September, 1949; how many carcases were condemned as unfit for human consumption; how the cargo was disposed of; and what the loss was on the transaction.

Mr. Webb: I think the hon Member is referring to a shipment of fresh mutton from Holland in September, 1949, consisting of 2,067 carcases, of which 1,850 were condemned. The condemned meat was sold to technical fat melters and the remainder was used for manufacturing purposes. We are still negotiating with the Dutch authorities on this matter.

NOTES AND NEWS

Diary of Events

Nov. 14th.—Scientific Meeting of the Zoological Society of London, Regent's Park, N.W.8, 5 p.m.
Nov. 15th.—Joint meeting of the Southern Counties V.S. and Southampton Branch, B.M.A., at Southampton (Polygon Hotel), 8.30 p.m. Invitation dinner, 7.30 p.m.—Mr. Foden to be notified by members.
Nov. 16th.—Meeting of the Hertfordshire and Bedfordshire Division, N.V.M.A., at Luton (George Hotel), 2.30 p.m.
Nov. 17th.—Annual General Meeting of the North Wales Division, N.V.M.A., at Denbigh (Bull Hotel), 2.30 p.m.
Nov. 17th.—Meeting of the Biochemical Society, at St. Mary's Hospital Medical School, Paddington, 2 p.m.
Nov. 22nd.—Meeting of the West of Scotland Division, N.V.M.A., in the Glasgow Veterinary School, 2.30 p.m.
Nov. 22nd.—Special Meeting of the South-Eastern Division, N.V.M.A., at Frant (Wellcome Veterinary Research Station), 6 p.m.
Nov. 22nd.—Research Defence Society, Stephen Paget Memorial Lecture, in the Physiology Lecture Theatre, University College, Gower Street, W.C.1, 5.30 p.m. (Professor E. D. Adrian, O.M., F.R.S.: "Experiments on the Nervous System.")
Nov. 24th.—Meeting of the Royal Counties Division, N.V.M.A., at Oxford (Forum Restaurant, Masonic Buildings, High Street), 2.30 p.m.
Nov. 28th.—Meeting of the East Midlands Division, N.V.M.A., at Sutton Bonington, 2.15 p.m.
Nov. 30th—Dec. 1st.—R.C.V.S. Membership Written Examinations.
Dec. 4th.—R.C.V.S. Membership Examinations: Orals and Practicals commence.
Jan. 10th, 11th, 12th, 1951.—Meetings of Committees and Council, R.C.V.S.

"The Veterinary Record"

With the resumption of work by the composing room staff of the printers of *The Veterinary Record*, following upon the settlement of outstanding issues in the London dispute, we are now able to follow the production of four enforced makeshift issues with a normal number. While our printers have much leeway to make up with journals additional to ours, we may, if all goes well, anticipate a big effort on their part to bring out issues of the maximum size that a renewed stringency in our paper position—an unfortunate new development imposed by the Ministry of Supply—renders possible.

We would repeat our expression of deep indebtedness to our readers and contributors, also to the secretaries of Divisions of the Association and our advertisers, for their accommodating co-operation throughout the difficult time which, we may hope and believe, is now past.

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STATEMENT TO COUNCIL ON THE PRINTING DISPUTE

At the meeting of Council, N.V.M.A. on Wednesday of last week a statement was made by the Editor on the dispute in the printing trade as it has affected the publication of *The Veterinary Record*.

Following the intimation that the dispute had resulted in much the most serious embarrassment to production that the journal of the Association had experienced throughout its long history, the statement continued: "Settlement of the majority of the issues raised by the findings of the Court of Enquiry, and the consequent resumption of work of our printers' compositor staff, enables us to look forward to the resumption of production of normal numbers following that of a series of four consecutive makeshift issues. We may anticipate, also, a big effort on the part of our printers to bring out our Congress number speedily and other issues of the maximum size that a possible renewed stringency in our paper position—an unfortunate new development threatened by the Ministry of Supply—renders practicable.

"Council will be aware that the dispute between the London Master Printers' Association and the London Society of Compositors, over wages and other matters, took place in two stages. Our good fortune in being unaffected during the first period was eventually to prove our undoing, as it prejudiced our chances of making alternative arrangements for printing during the second and longer stage. That position was reached in this way. So cordial were the relations between our printers and their compositors that the former felt justified at the outset—and with good reason under the circumstances then existing—in assuring us, with some confidence, that interference with *Record* production was unlikely. Nor was there any obstruction to our printing during the first stage: we were able to publish whereas the great majority of London-produced periodicals either were grievously handicapped or stopped entirely. Then came a short, general resumption of printing. This ceased when the Compositors' Society refused to lift its ban on overtime working. The fateful meeting at which this was decided upon had two serious results for us. Not only did the whole of our printers' compositor staff withdraw their labour, but the Society succeeded in inducing provincial staffs throughout England and Wales to refuse to handle matter from London. By that time a few of the many journals affected at the earlier stage had been successful participants in the stampede for provincial facilities. They had made themselves safe for duration, under contract; we were left stranded. Try as we—and some members of Council—might, no large firms would or could take our work, and such small firms as might be prepared otherwise to consider its acceptance could not find the paper. The supply of newsprint is zoned and under regulation we were precluded from coming to their assistance in that respect. We extended our search into Scotland, but, just as, through the good offices of Mr. Mathieson, we were on the point of succeeding, the London-imposed ban was extended across the Border. Even so, we are still endeavouring to safeguard ourselves against the effects of any recurrence of the trouble.

"Throughout the period during which we were involved, our printers were able to produce skeleton issues carrying articles—carefully eked out in use—already in type, together with an outer shell of display advertisement pages. The office staff turned to with a will and every such issue has included a typed inset, giving essential news in abbreviated form, diary items and small advertisements. It was the best we could do under the circumstances, but we are

deeply indebted to our readers and contributors, also to secretaries of divisions, for their patience and forbearance. It is a matter for satisfaction that we have managed to keep intact our advertisement revenue from both 'display' and small advertisement sources."

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N.V.M.A. Conference on Artificial Insemination

(Preliminary Report)

On Thursday November 2nd, a Conference on Artificial Insemination was held under the auspices of the National Veterinary Medical Association in the auditorium of the Wellcome Foundation, 183-193, Euston Road, London, N.W.1. Dr. R. F. Montgomerie occupied the chair and a very free and full discussion took place.

The main topic discussed was the co-operation between veterinary surgeons in charge of Centres and veterinary surgeons in practice with a view to improving the conception rate in problem herds. It was generally agreed that the extension of the A.I. Service had brought into sharp relief the existence of herds in which there is abnormal difficulty in getting the cows in calf; and it was accepted that, to meet this position, co-operation between the members of cattle-breeding centres, their veterinary surgeons and the Centre managers, must be of the highest order. Available evidence indicates that there is no material difference between the conception rate of natural service and that of insemination. In America, where Centres are not controlled by veterinary surgeons, the rates are below those obtained in Britain: the high level of technical control being a feature of British Centres. Evidence from Continental sources further emphasises this point.

Dr. Montgomerie, in his closing remarks, said he felt certain that an increase in the veterinary personnel of Centres would be of the greatest benefit in obtaining a high conception rate in the national herd.

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The Danish Veterinary Congress, 1950

N.V.M.A. President's Visit

As reported by him to the November meeting of Council, N.V.M.A., Mr. S. F. J. Hodgman, the President, represented the National Veterinary Medical Association at the annual meeting of the Danish Veterinary Association held in Aarhus on Sunday, September 24th. The President, who was accompanied by Mrs. Hodgman, left London on the previous day and both were warmly welcomed on their arrival at Aarhus in the late afternoon by Dr. Seidel, Secretary of the Danish Association, and again in the evening by Dr. Koch, the President, and Mrs. Koch at their unofficial party to the foreign delegates, who were received with great kindness and hospitality.

At his presentation to the members on the day of the Congress, marked emphasis was laid on the representation of the N.V.M.A. by its President—a fact which obviously gave great and general satisfaction. Only one paper was read—and, of course, in Danish—the subject being "Stomach diseases and intoxication in calves and swine."

In the evening delegates from Overseas were entertained right royally at a banquet held at the chief hotel. Mr. Hodgman was the first to be called upon to speak after the President's address and, taking his cue from Dr. Koch's speech (which he kindly translated into English for the benefit of his guests from this country) laid stress on the good relationship existing between veterinarians all over the world, and expressed regret that this good understanding could not be obtained between all nations. These sentiments were repeated in one form or another by all the speakers. Mr. Hodgman conveyed the greetings of the N.V.M.A. of Great Britain and Ireland to our Danish colleagues, and was charged by their President to convey to our Council and Members of our Association, sincere greetings and good wishes.

The Secretary, Dr. Seidel, had very kindly arranged an interesting programme for our President and his Lady on the following day in Copenhagen, but unfortunately flying conditions were so bad that they were unable to leave Aarhus till 5 p.m. They were met at Copenhagen by Dr. and Mrs. Seidel and were again entertained, Dr. and Mrs. Plum joining the party. However, they did have the opportunity of visiting an Animal Hospital in Copenhagen.

Although weather conditions interfered largely with the programme, our President had the opportunity of discussing many aspects and problems of common interest. Both he and Mrs. Hodgman will always look back with pleasure on their visit and feel grateful for the cordiality and friendliness of their reception.

Use of "Estate Cars" for Professional Purposes

Over the past 18 months, the Association has made several and varied representations through a number of channels in regard to the differing treatment accorded by different Government departments to "estate cars" or "station wagons" of the Landrover or Austin A40 Countryman type.

When these representations commenced, this type of vehicle was regarded as a "private" vehicle by H.M. Customs and Excise, irrespective of ultimate use, and purchase tax was levied at the manufacturing stage, at a time when that tax was not levied on "commercial" vehicles.

For the purposes of Road Tax, however, the Ministry of Transport advised local taxing authorities that estate cars when used by veterinary surgeons were "commercial" vehicles and that, in addition to the higher road tax payable by commercial vehicles, a carrier's licence (C category) and the keeping of a log-book of journeys was necessary and the lower speed limit applied.

In this year's Budget, the objection to the imposition of the purchase tax was met by the Chancellor of the Exchequer by the introduction of purchase tax on commercial vehicles.

Thenceforth, the representations were concentrated upon attempting to secure the treatment of these vehicles as private vehicles, and the removal of the lower speed limit and the necessity of keeping a logbook.

Each and every representation was countered by the statement that the Minister of Transport was advised that the carriage of medicines, drugs, instruments, etc., by anyone engaged in the profession of veterinary surgery should be regarded as the carriage of goods for or in connection with a trade or business within the meaning of Section 1 (1) of the Road and Rail Traffic Act 1933.

It should be explained here that every vehicle up to 3 tons unladen weight is a motor-car so long as it is constructed to carry not more than seven passengers, excluding the driver, runs on pneumatic tyres and does not draw a trailer. All other vehicles are goods carrying vehicles and must have an A B or C licence to carry goods for hire or reward or for or in connection with a trade or business.

The interpretation accepted by the Minister of Transport has not been tested in the courts but it would appear from a statement made by the Parliamentary Secretary, Ministry of Transport, on October 24th, that his Department would resist any attempt to secure a different interpretation.

The situation remains, then, that members of the profession using Landrovers and similar vehicles can be called upon to pay the road licence at the "goods" rate, must take out a "C" (carrier's) licence and are subject to the restrictions of that licence, *e.g.*, maintain a log-book of journeys: and are still subject to the lower speed limit (in built up areas) in spite of the Motor Vehicles (Variation of Speed Limit) Regulations 1950 which removes estate cars used solely for carrying passengers from the vehicles restrained previously to a speed limit of 20 m.p.h.

It will be appreciated that this situation obtains also in the case of members of other professions where the circumstances are identical.

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PERSONAL

Birth.—Drew-Smythe.—On October 21st, 1950, to Jean (*née* Anstruther), wife of Richard Drew-Smythe, of Field Farm, Minety, Wilts—a son.

* * * * *

ROYAL ARMY VETERINARY CORPS

The King has approved the appointment of Colonel (Honorary Brigadier) G. A. Kelly, late R.A.V.C. (retired), as Colonel Commandant, Royal Army Veterinary Corps, in succession to Colonel (Honorary Brigadier) C. A. Murray, late R.A.V.C. (retired).

* * * * *

THE LATE MR. JOHN A. A. NAISMITH, M.R.C.V.S.

Our readers will learn with deep regret that Mr. Naismith, of Hamilton, Lanarks, whose death was recorded in our issue of October 7th, was the victim of a tragic accident: he was electrocuted while holding a faulty plug of an electric kettle which was connected with the main.

Dr. James Spreull, M.R.C.V.S., of Dundee, writes: "John Naismith was the son of Mr. and Mrs. Naismith of "Roslyn," 7, Windmillhill Road, Hamilton. He was educated at Hamilton Academy and qualified M.R.C.V.S. at Glasgow College in July, 1950. Before

qualifying he did war service with the Army Veterinary Corps. He was unmarried and was assistant with us for two and a half years before going to Grangemouth where he set up in general practice and where he practised for some eight months.

"John Naismith was a quiet, sincere and conscientious young man. We benefited from his friendship, his help and efficiency. He was a most promising young practitioner."

* * * * *

LEGAL NOTES

Docking: A "Little Known" Offence.—A case in Denbighshire in which Trevor Lloyd Jones, Pant Idda, Abergele, pleaded guilty to a charge of docking two foals was dismissed on payment of costs. Proceedings were brought under the Docking and Nicking of Horses Act, 1949. Mr. Jones told the police he was unaware he had broken the law. It was stated on his behalf that the Act came into force on January 1st and many were unaware of its existence.

[In our issue of October 7th (p. 600) we recorded the first prosecution (and conviction) under the Docking and Nicking of Horses Act and recapitulated its provisions as set forth in our issue of January 21st, 1950.—*Editor*].

. . . . . .

Animal Defence Society Loses Income Tax Exemption Claim.—On Thursday of last week Mr. Justice Danckwerts dismissed the appeal of the Animal Defence and Anti-Vivisection Society from a decision of the Special Commissioners who had held that the Society was not entitled to claim exemption from income tax for the years 1942-43 under section 37 of the Income Tax Act, 1918, and section 19 (1) of the Finance Act, 1925, on the ground that it was "not a body of persons established for charitable purposes only."

The Society was formed in 1906 as a voluntary society. Rule 1 of the Society's rules stated that the object of the Society was the promotion of justice to animals and the suppression of all cruelty. Rules 2, 3 and 4 of the Society provided:—

2.—The Society shall offer practical teaching in regard to the treatment of animals, humane education and enlightenment by lectures, publications, exhibitions and demonstrations. . . . 3.—The Society shall consistently expose and denounce cruelty wherever practised, maintaining that compassion and justice are the basic qualities of civilisation. . . . 4.—The Society shall oppose vivisection and all experiments on animals calculated to cause pain. (Definition of Cruelty to Animals Act, 1876.)

The Society stated that much of its work, both educational and practical, had been concerned with the relief of animals from suffering.

It was contended on behalf of the Society that, as an organisation for the general protection of animals, it was established for charitable purposes only. The Society further contended that the decision in National Anti-Vivisection Society *v.* Inland Revenue Commissioners (63) *The Times* L.R. 424; [1948] A.C. 31) was distinguishable.

The appellant Society said, however, that it had always objected to vivisection experiments on animals, and it did not contend that its anti-vivisection principles could be separated from its other activities. Members of the Society believed that the results achieved from experiments on animals were not beneficial to the community and did not lead to the alleviation of human pain and the prolongation of human life, and that alternative methods produced better results, and included reform in the methods of slaughter and transport of animals.

Mr. Elliot Gorst and Mr. F. Bucher appeared for the Society; Mr. Gerald Upjohn, K.C., Mr. J. H. Stamp and Mr. Reginald Hills for the Crown.

His Lordship, dismissing the appeal, held that rules 1, 2 and 3 would not have prevented the Society from claiming exemption from tax as a charity; but by rule 4 the Society included the suppression of vivisection among its objects and, therefore, it included objects which were held by the House of Lords in National Anti-Vivisection Society *v.* Inland Revenue Commissioners (*supra*) to be non-charitable. That case governed the present case.—*The Times* (Law Report).

. . . . . .

Hounds Suffocated in Horse-Box.—For causing unnecessary suffering to hounds by confining them for an undue length of time in a road vehicle under unsuitable conditions, Ernest Young, 51, huntsman to the West Kent Hunt, was fined £15 by Sevenoaks magistrates. The R.S.P.C.A., which brought the prosecution, was allowed seven guineas costs. Young had pleaded Not Guilty.

Mr. Douglas Thomson, for the defence, intimated that there would be an appeal.

Mr. Gordon Jones, for the prosecution, said that on Saturday, September 2nd, a little before 2.15 p.m., a number of hounds were loaded up at the West Kent Hunt kennels to go to a display at Sevenoaks. Twenty-two hounds were loaded on to the two tiers of a converted horse-box; the ten hounds in the summons were placed on the bottom tier. The horse-box was intended for transport and not meant to be used for the confinement of hounds. The total confinement of the hounds was about an hour. The compartment the ten hounds were in was 5 ft. 2 in. by 6 ft. A partition divided the upper and lower compartments—the lower compartment being much smaller than the top. When it was loaded up, two horses were in the forward compartment. On arrival at Sevenoaks the hounds were in perfect condition.

After the display, at about 4.15 p.m., 22 hounds were reloaded into the vehicle, ten being placed in the lower and smaller of two compartments. Then Young went to the secretary's tent for "a little refreshment." Although the whipper-in twice went to fetch him, Young did not return to the horse-box until about 6.30 p.m. and they did not reach the kennels until 7.15 p.m. That meant that the hounds had been confined for at least three times the normal period. When the horse-box was opened nine of the ten hounds were found to be dead: the tenth died later.

Mr. Alan Taylor, a veterinary surgeon, said in evidence that the hounds died of suffocation. There was no sign of exhaust poisoning.

Young, giving evidence, said that it was a great tragedy. He could have dropped dead. It was just like seeing his family—just the same thing—a terrible shock.

Mr. Thomson said the van was unsuitable and had since been fitted with a ventilator. Young was being asked to take the blame.

* * * * *

Royal College of Veterinary Surgeons

Central Library for Animal Diseases

ACCESSIONS FOR THE QUARTER ENDING SEPTEMBER, 1950

ANTHONY, David John. Diseases of the pig and its husbandry. *Third edition*, London: Baillierè, Tindall and Cox, 1950.

COMMONWEALTH BUREAU OF PLANT BREEDING AND GENETICS. New and promising varieties recently described in the literature (seventh issue). Cambridge, School of Agriculture, 1948.

DARRASPEN, E. *and others*. Les Sérums sales en médecine vétérinaire, physiologie—pathologie comparée, therapeutique. Paris: Vigot Frères, 1949.

GÖTZE, R. Neuzeitliche Embryotomie bei Pferd und Rind. *Vierte Auflage*, Hanover: M. and H. Schaper, 1950.

HUTT, F. B. Genetics of the fowl. *First edition*. New York: McGraw-Hill, 1949.

JONES, Harold Wellington, *and others, editors*: Blakiston's new Gould medical dictionary. London: H. K. Lewis, 1949. (For reference only).

LESBOUYRIES, G. Reproduction des manniferes domestiques. Sexualite. Paris: Vigot Frères, 1949.

MAIR, William. An index of modern remedies (fourth series). Glasgow "Scottish Chemist," 1948.

NEGUS, Victor Ewings. The comparative anatomy and physiology of the larynx. New York: Grune and Stratton Inc., 1949.

OTERO, P. Morales. Studies of brucella infection in Puerto Rico, by P. Morales Otero, n.p., 1948.

REINHARDT, Richard. Lehrbuch der Geflugelkrankheiten, *Vierte Auflage*. Hanover: M. and H. Schaper, 1950.

SCHNELLE, Gerry B. Radiology in small-animal practice. A textbook on applied radiography and diagnosis by Gerry B. Schnelle with a section on radiotherapy by Myron Thom. Evanston, North American Veterinarian, 1950. Second revised edition of "Radiology in canine practice." 1945.

TRAUTMANN, Alfred and FIEBIGER, Joseph. Lehrbuch der Histologie und vergleichenden mikroscopischen Anatomie der Haustiere, *Achte und neunte Auflage*. Berlin: Paul Parey, 1949.

* * * * *

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

SHEEP SCAB:

Cumberland.—Wastwater Hotel, Wasdale Head, Gosforth, Cumberland. (Disease at Row Head Farm, Wasdale Head, Gosforth, Cumberland); Taw House, Boot, Holmrook, Cumberland (Oct. 23rd).

SWINE FEVER:

Cheshire.—Damery Farm, Bramhall, Cheshire (Oct. 26th).
Cumberland.—Scale Bank, Alston, Cumberland (Oct. 30th).
Lancs.—Shawhead Farm, Lord Lane, Failsworth, Manchester (car-

case at City Abattoir, Manchester) (Oct. 30th); New Bank Farm, Woodhouses, Ashton-under-Lyne (Nov. 2nd).

Lincs (*Lindsey*).—107, Cemetery Road, Scunthorpe, Lincs; Aby, Alford, Lincs (Oct. 31st).

Surrey.—Piggeries at Occasional Road, Mitcham, Surrey (Oct. 31st).

Yorks, N.R.—High Carr Farm, Sutton-on-Forest, Yorks (Oct. 26th); Aiskew Grange, Aiskew, Bedale, Yorks (Nov. 4th).

Yorks, W.R.—27, Oakley Terrace, Dewsbury Road, Leeds, 11 (Disease at Piggery at rear of Crescent Cinema, Dewsbury Road) (Oct. 26th); The Rosary, Bawtry Road, Bessacarr, Doncaster (Oct. 28th); Glenholme, Whitley Bridge, Goole, Yorks (Oct. 31st); Ryecliffe Farm, Ryhill, Wakefield (Nov. 2nd); 62, Thistle Road, Middleton, Leeds (I.P., Thorpe Lane Allotments, Middleton) (Nov. 3rd).

Wigtown.—Scottish Co-Op. Wholesale Soc. Piggeries, Sheuchan Park Road, Stranraer (Nov. 1st); 3, Ivy Place, Stranraer (I.P., Low Mye Farm, Stoneykirk, Stranraer) (Nov. 2nd).

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Tuberculosis (Attested Herds) Scheme

STATEMENT SHOWING POSITION IN EACH COUNTY AS AT SEPTEMBER 31ST, 1950

County	Total Cattle as at 3.6.49	Number of Attested Herds as at 30.9.50	Number of Cattle in Attested Herds as at 30.9.50	Percentage of Attested Cattle to Total Cattle
Bedford	46,479	122	6,690	14·4
Berks	84,174	558	28,750	34·2
Buckingham	113,472	414	21,450	18·9
Cambridge	31,593	108	5,750	18·2
Isle of Ely	21,202	31	1,440	6·8
Chester	247,492	798	33,490	13·5
Cornwall	275,770	637	20,790	7·5
Isles of Scilly	481	89	480•	100·0
Cumberland	224,496	1,868	82,000	36·5
Derby	186,246	405	19,420	10·4
Devon	414,027	958	37,070	9·0
Dorset	149,729	820	42,590	28·4
Durham	117,047	599	20,320	17·4
Essex	123,889	628	29,480	23·8
Gloucester	193,655	716	37,200	19·2
Hampshire	145,909	926	41,190	28·2
Isle of Wight	21,182	133	5,410	25·5
Hereford	141,535	406	18,470	13·0
Hertford	59,935	321	18,240	30·4
Huntingdon	28,875	41	2,280	7·9
Kent	121,250	542	24,820	20·6
Lancaster	278,129	1,139	40,580	14·6
Leicester	164,788	258	13,130	8·0
Lincoln (Holland)	27,596	6	60	·2
Lincoln (Kesteven)	69,263	57	2,460	3·6
Lincoln (Lindsey)	159,190	130	5,760	3·6
London	—	—	—	—
Middlesex	7,733	38	2,110	27·3
Norfolk	181,444	479	30,760	17·0
Northampton	154,023	177	10,110	6·3
Soke of Peterborough	6,917	177	10,110	6·3
Northumberland	205,438	380	20,020	9·7
Nottingham	108,927	180	7,600	7·0
Oxford	105,698	623	30,700	29·0
Rutland	19,842	14	740	3·7
Salop	282,690	661	37,130	13·1
Somerset	326,083	1,284	62,730	19·2
Stafford	238,355	386	17,000	7·1
Suffolk, East	80,934	278	13,240	16·4
Suffolk, West	38,473	179	10,000	26·0
Surrey	52,004	427	17,440	33·5
Sussex, East	108,009	530	20,170	18·7
Sussex, West	73,907	389	18,660	25·2
Warwick	151,148	354	18,540	12·3
Westmorland	96,904	1,538	59,690	61·6
Wilts	195,868	612	41,630	21·3
Worcester	102,638	247	12,150	11·8
Yorks, East Riding	135,277	103	3,430	2·5
Yorks, North Riding	254,022	905	31,150	12·5
Yorks, West Riding	341,247	1,511	48,010	14·1
ENGLAND	6,709,994	24,015	1,072,330	16·0
Anglesey	58,054	262	7,010	12·1
Brecon	49,223	205	7,250	14·7
Caernarvon	62,281	459	11,280	18·1
Cardigan	76,498	3,849	58,610	76·6
Carmarthen	137,205	5,192	97,300	70·9
Denbigh	104,813	728	19,260	18·4
Flint	62,045	181	7,190	11·6
Glamorgan	76,998	302	8,280	10·8
Merioneth	42,677	1,099	21,320	50·0
Monmouth	73,080	236	9,480	13·0
Montgomery	99,820	596	19,550	19·6
Pembroke	103,379	1,993	43,150	41·7
Radnor	39,308	62	1,810	4·6
WALES	985,381	15,164	311,490	31·6
ENGLAND & WALES	7,695,375	39,179	1,383,820	18·0
SCOTLAND	1,568,570	13,303	658,450	41·9
GREAT BRITAIN	9,263,945	52,482	2,042,270	22·0

• All cattle herds in Zetland and Isles of Scilly are attested. This figure represents the number of animals in the last test of the herds.

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SALE OF PENICILLIN IN NORTHERN IRELAND

In its issue of September 30th *The Pharmaceutical Journal* reported that at the September meeting of the Council of the Pharmaceutical Society of Northern Ireland the Secretary read a letter from a veterinary surgeon in a provincial town complaining that chemists were selling to farmers penicillin intramammary tubes without prescription. The writer asked that the Council should take action to stop this practice.

The President said the sympathy of chemists was with the farmers in this matter as there was no reason why this form of penicillin should not be exempt from the Act. A member of the Council said the farmers had to act quickly when disease was noted in cows and could not afford to wait for the arrival of a veterinary surgeon; another member thought all penicillin ointments should be exempt.

Professor Mayrs thought that as penicillin was no longer scarce the regulations might be relaxed.

It was decided to consult the Ministry on the question.

* * * * *

THE FACULTY OF HOMOEOPATHY

An Act to incorporate the Faculty of Homoeopathy has been published by the Stationery Office (price 2s. net). The objects of the new Faculty are to continue the work hitherto carried on by the existing Faculty for the advancement of the principles and the extension of the practice of homoeopathy. The Act establishes the status of fellowship and of membership of the Faculty, and it enables the Faculty to grant to medical practitioners diplomas or certificates in recognition of special knowledge in homoeopathy. Provision is also made for the Faculty to advise on courses of study and technical training calculated to promote and ensure the fitness of persons desirous of qualifying for membership.

The names of the first members of the Council of the Faculty are set out in the Act. The Act also includes the text of the first by-laws of the Faculty. Under these, authority is given to the Council to publish periodicals, circulars and calendars, and, in particular, to publish the *British Homoeopathic Journal*. The by-laws also provide for the establishment of local branches and for the payment out of the central fund of an annual sum not exceeding 10s. 6d. per member. An appendix to the by-laws sets out regulations of the Faculty. Fellows, on admission, become entitled to the use of the letters "F.F.Hom." and members, the letters "M.F.Hom." The annual subscription for each fellow is to be three guineas and for members two guineas.

In reference to "offences," it is laid down that no member shall canvass for election to the Council, and that no honorary member or member shall solicit recommendations for advancement to the fellow-

ship. Another regulation states that any person who announces by placard on any public place or who publishes in any advertisement or circular letter his mode of practice or place of abode or who sells or causes to be sold any secret remedy or nostrum or who publishes any pamphlet or book in which cases of cure are detailed and the remedies concealed shall not be admissible as a member. If any member commits any of these offences he becomes liable to expulsion.—*Pharm. J.*

* * * * *

LONGEVITY RECORD IN CONTROLLED DIABETES

F. M. Allen and J. R. Lisa (1950) record in *Endocrinology* (**49.** 282-290) that a dog with severe diabetes after partial pancreatectomy was able to live for 12 years under control of the sugar with insulin, without organic or vascular pathology. As far as known, this is the longest recorded survival with any form of severe experimental diabetes.

The retention of unusual liveliness, together with the normal autopsy findings, indicated that life could have been considerably longer except for an accidental termination. The controlled diabetes evidently did not reduce longevity. The continuous limitation of calories and bodyweight is suggested as possibly prolonging both life and vigour, in accord with demonstrations in other species.

Some interrelations of human and canine diabetes are discussed. Differences of species must be considered in interpreting experiments. The present observation can stand only as an isolated fact, until suitable control experiments along the lines indicated may elucidate the cause of diabetic arteriosclerosis.

* * * * *

BRITISH SUCCESS AT U.S. HORSE SHOW

Lieut.-Col. H. M. Llewelyn, a member of the British show jumping team, riding Foxhunter, won the international inaugural jumping event at the national horse show at Madison Square Garden, New York, on October 31st. Captain Valdes, of the Mexican Army team, was placed second, and there was a tie for third place between Captain Tubridy, of the Irish Army team, Cadet Vinals, of Mexico, and Arthur Macashin, of the United States.—*Reuter.*

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

SWINE FEVER (CRYSTAL VIOLET) VACCINE

Sir,—The Ministry has purchased small quantities of Swine Fever (Crystal Violet) Vaccine from both Germany and U.S.A. The vaccine from Germany has been tested for purity and found satisfactory, but the vaccine from the United States which has been made under the supervision of the Bureau of Animal Industry, Washington, is not being tested in Great Britain.

The vaccine will be distributed by the Ministry as far as supplies will enable that to be done, to veterinary surgeons who apply for it, priority being given to those cases where the vaccine is required for pedigree and valuable breeding herds. The price of the vaccine is 3s. 6d. per dose (5 c.c.) for the American product and 2s. 6d. per dose for the German make.

The Ministry is making a new batch of the vaccine at its Veterinary Laboratory at Weybridge and hopes within about two months to be in a position to distribute further supplies of its own make.

As the inoculation of the vaccine into sick pigs or those which have been exposed in any way to infection of swine fever, though they may not be showing any signs of illness, would in all probability lead to fatal results, veterinary surgeons are advised to make enquiries of owners before vaccinating their pigs, in order to be satisfied that the pigs have not been exposed to the possibility of infection with swine fever during the preceding four weeks.

Yours faithfully,

S. P. Maddison.

Ministry of Agriculture and Fisheries,
Animal Health Division,
Hook Rise, Tolworth,
Surbiton, Surrey.

November 4th, 1950.

* We apologise to those of our correspondents whose letters have been delayed in publication in consequence of the printing dispute.

CYSTICERCUS BOVIS

Sir,—There is one aspect of this problem which does not so far appear to have received sufficient attention. I refer to the incidence of human infection by the adult stage of this parasite in relation to its cystic stage in cattle, as revealed by recent statistics.

The North-east of Scotland, being one of the main beef-producing areas of Britain, has been responsible for a considerable number of infected carcases. In addition to the cases found in fat cattle exported from this area, there have been over 170 cases reported so far this year in cattle slaughtered within this part of Scotland and the fact that no cases have been reported from some slaughter-houses drawing supplies from identical grading centres suggests that the actual incidence is probably much higher.

The Public Health Authorities in this area have traced back a number of infected animals to the premises of origin and made enquiries as to the possibility of human infection on such premises. A high percentage of the animals involved were born and reared on the farms from which they were eventually sent for slaughter. From all the enquiries with which I have been concerned as Area Technical Adviser to the Ministry of Food, I have not yet heard of a single instance of human infection with *Taenia saginata* being confirmed or even suspected, yet I am assured by competent medical authorities that it is not possible for a human being to harbour this parasite for any length of time without being aware of its presence.

It seems, therefore, that some investigation into the life cycle of this parasite is called for. One possible result of such an investigation might be the discovery of a deviation in the life cycle involving other hosts of the adult stage.

Some further information on the actual risk of human infection under the conditions of handling and treatment of meat in Britain might also serve a useful purpose.

Yours faithfully,

E. F. Hardwick.

2, Golden Square,
Aberdeen

October 3rd, 1950.

* * * * *

INFECTIOUS CANINE HEPATITIS

Sir,—Mr. T. W. F. Pay (*Vet. Rec.*, September 23rd, 1950) states that "following" Rubarth's classic description, "reports of infectious canine hepatitis have been made in the United States of America"; also that "it is perhaps striking that a disease with such a distinctive pathology should apparently pass unrecognised outside of Sweden for nearly 20 years."

To reassure Mr. Pay that such is not the case, may I direct attention to the published report of the N.Y. State Veterinary College for the year ending June, 1945, where the diagnosis "Fox encephalitis" appears in two cases among the canine autopsies. These autopsy diagnoses on clinical material were based on information gained from experimental work which was done here a few years previously by Kriesel: "A comparative study of the manifestations and histopathology of canine distemper and experimental fox encephalitis infection in dogs," (*Cornell Vet.* **28,** 324-330, 1938).

Yours faithfully,

Leon Z. Saunders, D.V.M.

Department of Pathology and Bacteriology,
New York State Veterinary College,
Cornell University,
Ithaca,
New York.

October 16th, 1950.

* * * * *

INTESTINAL ADHESIONS TO THE UTERINE STUMP

Sir,—We would like to reply to Mr. Nye's comment on the above subject. The point we raised was, that, judging from the lack of reports, and our own experience, *significant* intestinal adhesions to the uterine stump following hysterectomy are rare. In this statement, "significant" is the operative word; and the absence of infection, although not stated in our communication, is nevertheless implied.

We do not doubt that adhesions are likely to follow amputation of the uterus, even when, as is our practice, the stump is carefully invaginated; but, in the absence of infection at this site, which we have never experienced, despite the use of silk as a ligating medium, we maintain that adhesions between the uterine stump and the intestines, producing clinical symptoms, are not common.

Most of the cases of hysterectomy upon which we have operated

in the past four years have been followed up, but this is the first case of this kind that we have encountered. In a few cases, laparotomy has been performed later for some other condition, or *post-mortem* examination has been carried out, and, in all cases, the uterine stump has been found to be remarkably small and usually firmly, but harmlessly, adherent either to the peritoneum in the immediate vicinity or to the neck of the bladder.

Yours faithfully,

12, Heene Way, Worthing, Sussex. F. G. Startup, Christine M. Startup.

September 12th, 1950.

* * * * *

Sir,—In connection with reports of adhesions of the uterine stump, it may be of interest that H. G. Senter, D.V.M., of Tennessee, reports that "From an etiological viewpoint, abdominal adhesions as seen in the dog may be classified into two groups: operative (surgical); non-operative (traumatic).

"Operative causes may be:—

1. Prolonged exposure of abdominal tissues.
2. Trauma from surgical instruments or rough manipulation.
3. Haemorrhage and seepage.
4. Improper ligature material or improper fixation.
5. Introduction of foreign materials into the abdominal cavity, such as hair, cotton fibres, etc.

"Non-operative causes may be:—

1. External violence; as kicks or auto injuries.
2. Penetration of foreign bodies from the exterior; as wild oat beards, shot, etc.
3. Ingestion of foreign bodies."

He goes on to give a case-report of adhesions between the uterine stump and the bladder.

Yours faithfully,

32, Christchurch Road, Worthing A. D. A. Isherwood.

October 12th, 1950.

Reference

Senter, H. G. (1950.) *Vet. Med.* **45**, 426.

* * * * *

AN OUTBREAK OF ASSUMED "HARD PAD" DISEASE

Sir,—It still seems difficult for the clinician to diagnose "hard pad" with any certainty. Apparently it is not infrequently mistaken for distemper, but a dog so affected certainly does not present the well-known and typical syndrome of distemper.

This summer I and my colleague, Miss Chaplin, M.R.C.V.S., have treated an outbreak of disease among 450 greyhounds, 30 of which were affected and showed the following symptoms:—

Very injected conjunctivae; recession of eyeballs and prominence of haws; anorexia; listlessness; some with hyperpyrexia (105° to 108°) but most with temperatures fluctuating between 102° and 104°: refusal to drink; mucoid (never purulent) ocular discharge; no nasal discharge; dribbling from the angles of the mouth; rapid and sometimes alarming loss of flesh; diarrhoea in all and often with blood admixture; slight cough in a few.

Every case eventually developed extremely severe respiratory symptoms, in most cases accompanied by swelling of the throat and ulceration of the pharyngeal and laryngeal mucosae. These conditions seemed to respond to powdering every hour or so with crushed penicillin lozenges. Several of these dogs showed some mental imbalance or fits, but appeared to improve on luminal and/or bromides.

There was a long incubation period in nearly every case during which there was almost total inappetence; but dogs were still racing and even winning. This lasted three to six weeks.

All the affected dogs were under two years of age and *none developed hard pads*. Yet in spite of the latter two facts I was convinced the cases were not true distemper, but were probably due to some other virus infection and possibly specific encephalitis or hard pad.

Two of the worst affected (*i.e.*, with hyper-pyrexia) finally developed meningo-encephalitis and died. Another was destroyed in consequence of a very unusual and intractable type of brain affection.

Several received anti-distemper serum which lowered the temperature for a short time only; some had a four to five days' course of sulphapyridine, but with no useful effect. Then, as temperatures rose again, about ten dogs were treated by intramuscular injections of Avloprocil. This, after three days, was abandoned as the patients were still retrogressing. The worst three were then given CF9 but some alarming reactions were noted without later improvement, and no more was given.

As the disease progressed, it seemed that no two dogs followed precisely the same course, or responded to the same line of treatment. Three of the dogs showed a spectacular response to Amphotropine where all other drugs had failed.

Valuable time was being lost and a few of the dogs seemed about to die. As a last resource it was then decided to inject streptomycin (½ gramme in 3 c.c. distilled water, intramuscularly), night and morning. Temperatures then commenced gradually to fall, and the dogs began to lap a little liquid food.

Recovery was slow and, apart from those mentioned as suffering from meningitis, *none died*. I am forced to conclude that streptomycin was the deciding factor, in spite of the fact that another colleague (who had been dealing with a similar outbreak) said he could not rely on it.

At the same time I regard as extremely important the unremitting care and attention bestowed upon these animals by the nursing staff who put in day and night attendance, and the diligence of Miss Chaplin who assisted me in the kennels. The animals were forcibly fed every two hours with either Benger's food, milk, eggs, or concentrated meat juice and jellies, etc., and the diet was reinforced by large doses of protein hydrolysate orally and intraperitoneally. Vitamin B was not forgotten; and the tonic used during convalescence was Collotone.

About the same time, we read in the newspapers, of an outbreak of so-called "para-distemper" at one of the London tracks, in which 26 greyhounds died. I am left wondering whether the cause of the two outbreaks was identical.

Yours faithfully,

658, Finchley Road, N.W.11 H. Kirk.

October 2nd, 1950.

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OFFICAL WORK: A MINISTRY REQUIREMENT

Sir,—The Diploma of Membership of the Royal College of Veterinary Surgeons states that the recipient is "fully qualified to practise the art and science of Veterinary Surgery and Medicine," but the Ministry of Agriculture and Fisheries insist that not until a year has elapsed since graduation, coupled with three months' service with the employer, can such a Member undertake tuberculin testing and other official work.

The result is, that I am limited in my selection of assistants, and new graduates are unable to get employment.

Such an embargo is farcical.

Yours faithfully,

Winchester, J. F. D. Tutt, F.R.C.V.S.

October 4th, 1950.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
Oct. 1st to 15th, 1950	8	—	1	—	—	34
Corresponding period in—						
1949	11	—	47	—	1	—
1948	5	—	1	—	4	1
1947	4	—	147	—	2	—
Jan. 1st to Oct. 15th, 1950	285	20	103	—	21	210
Corresponding period in—						
1949	177	13	455	—	34	5
1948	84	2	250	1	52	24
1947	91	103	1008	1	66	29

Note.—The figures for the current year are approximate only.

* Excluding outbreaks in Army Horses.

Tuberculosis Order of 1938

The number of bovine animals slaughtered under the Tuberculosis Order of 1938 during the period July 1st to September 30th, 1950, was 1,227.